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PATENT & TRADEMARK OFFICE

FIG. 1

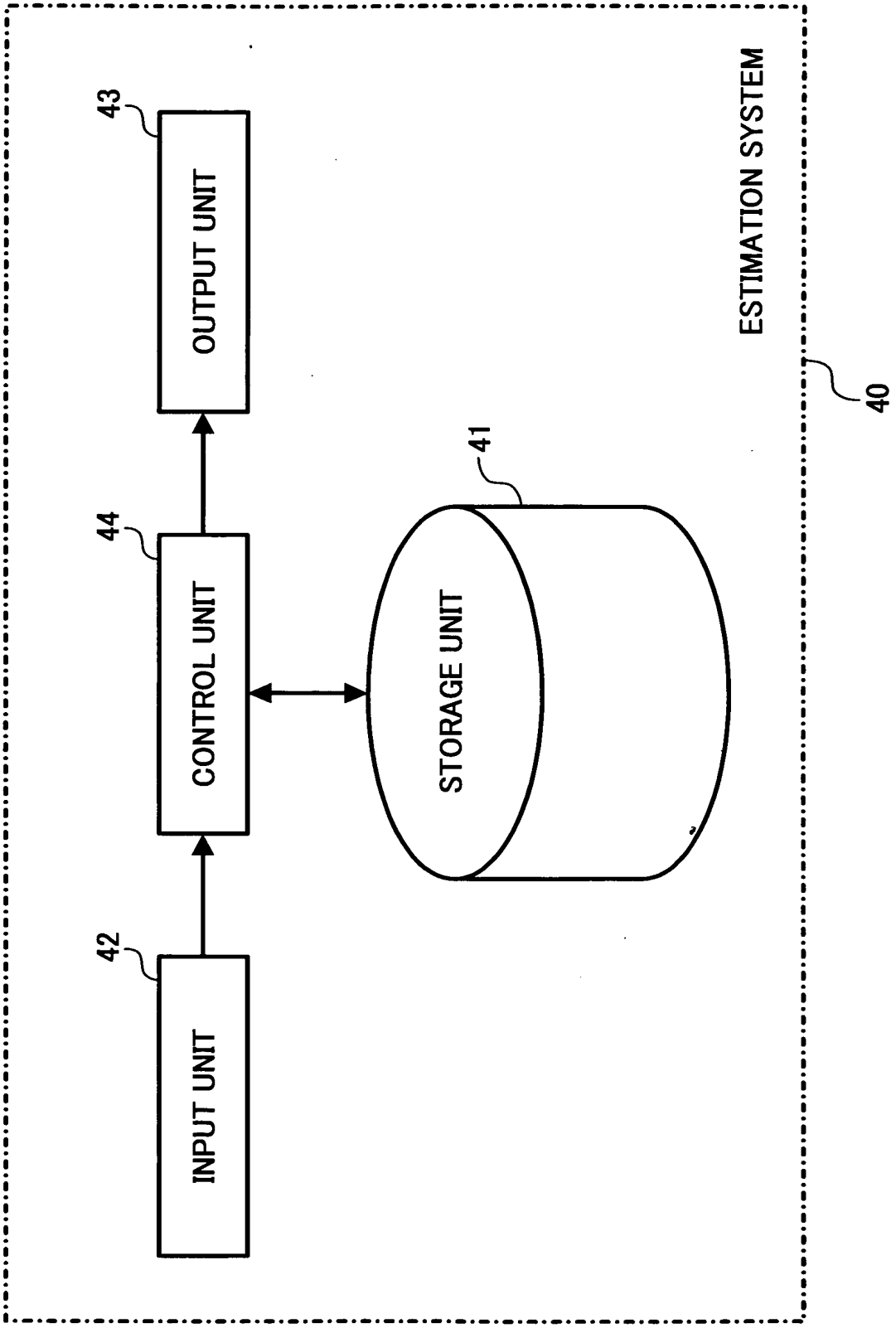


FIG. 2

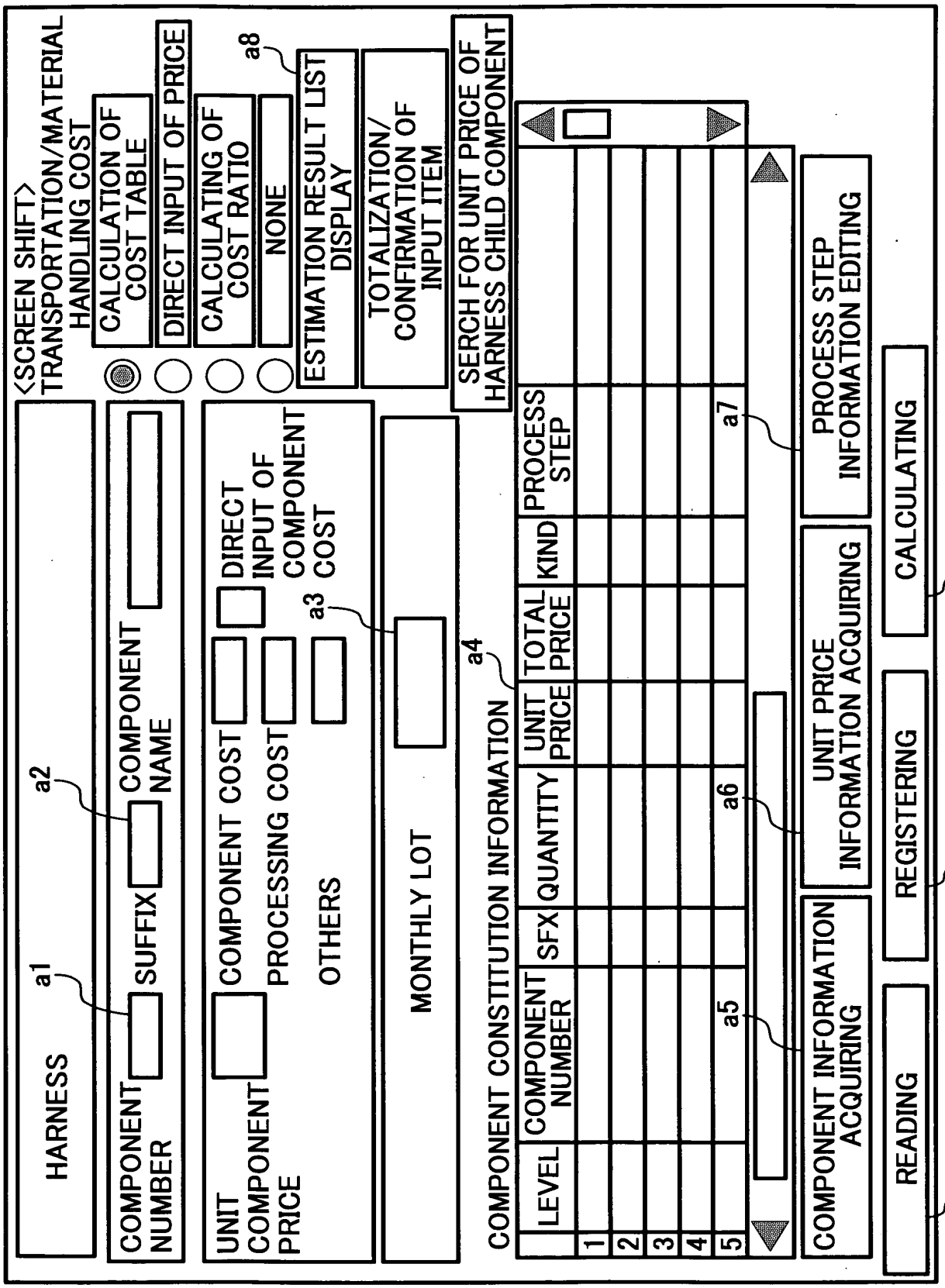

<SCREEN SHIFT>
TRANSPORTATION/MATERIAL HANDLING COST
CALCULATION OF COST TABLE
DIRECT INPUT OF PRICE
CALCULATING OF COST RATIO
NONE
a8
ESTIMATION RESULT LIST DISPLAY
TOTALIZATION/ CONFIRMATION OF INPUT ITEM
SERCH FOR UNIT PRICE OF HARNESS CHILD COMPONENT
HARNESS
a1
a2
COMPONENT NUMBER
SUFFIX
COMPONENT NAME
UNIT COMPONENT PRICE
COMPONENT COST
PROCESSING COST
OTHERS
DIRECT INPUT OF COMPONENT COST
a3
MONTHLY LOT
a4
COMPONENT CONSTITUTION INFORMATION
LEVEL
COMPONENT NUMBER
SFX
QUANTITY
UNIT PRICE
TOTAL PRICE
KIND
PROCESS STEP
1
2
3
4
5
a5
a6
a7
PROCESS STEP INFORMATION EDITING
UNIT PRICE INFORMATION ACQUIRING
CALCULATING
a11
COMPONENT INFORMATION ACQUIRING
REGISTERING
a10
READING
a9

FIG. 3

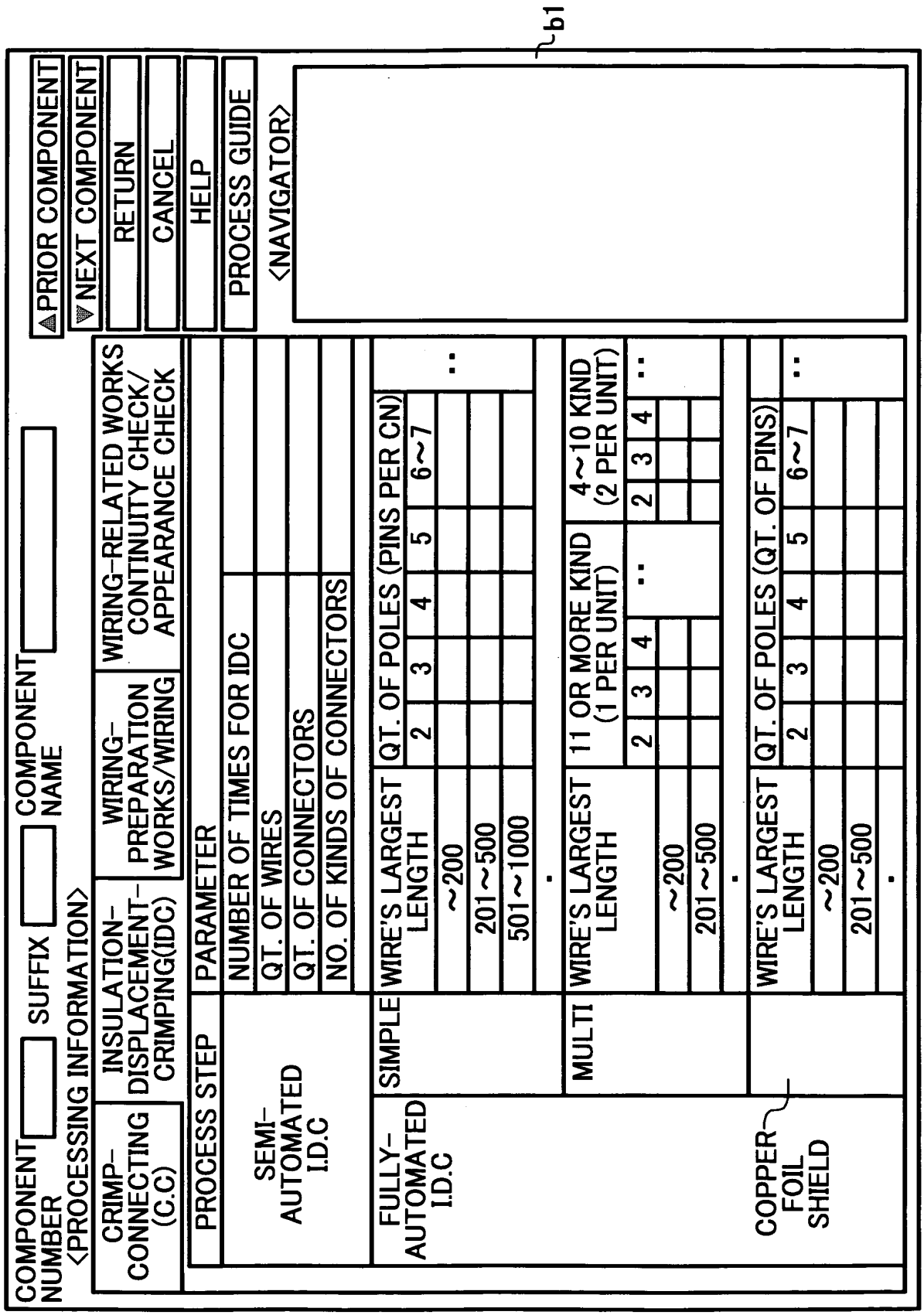

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
<PROCESSING INFORMATION>
CRIMP-CONNECTING (C.C)
INSULATION-DISPLACEMENT-CRIMPING(IDC)
WIRING-PREPARATION WORKS/WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/ APPEARANCE CHECK
PROCESS STEP
PARAMETER
SEMI-AUTOMATED I.D.C
NUMBER OF TIMES FOR IDC
QT. OF WIRES
QT. OF CONNECTORS
NO. OF KINDS OF CONNECTORS
FULLY-AUTOMATED I.D.C
SIMPLE
WIRE'S LARGEST LENGTH
QT. OF POLES (PINS PER CN)
2 3 4 5 6~7
~200
201~500
501~1000
MULTI
WIRE'S LARGEST LENGTH
11 OR MORE KIND (1 PER UNIT)
4~10 KIND (2 PER UNIT)
2 3 4 .. 2 3 4
~200
201~500
COPPER FOIL SHIELD
WIRE'S LARGEST LENGTH
QT. OF POLES (QT. OF PINS)
2 3 4 5 6~7
~200
201~500
PRIOR COMPONENT
NEXT COMPONENT
RETURN
CANCEL
HELP
PROCESS GUIDE
<NAVIGATOR>
b1

FIG. 4

C.C	
	FULLY-AUTOMATED CUTTING
	MANUAL C.C
	SEPARATED TERMINAL C.C
	CONTINUOUS TERMINAL C.C
	FULLY AUTOMATED-DUAL TERMINAL C.C
	TERMINAL INSERTING
IDC	
	SAIDC
	FADTIDC (MULTI)
	FADTIDC (SIMPLE)
	FADTIDC (COPPER FOIL SHIELD)
WIRING-PREPARATION WORKS/WIRING	
	SOLDERING
	INSULATION SLEEVE INSERTION
	WIRE MARK ADHERING
	SINGLE CN INSERTION INTO HOUSING
	WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/APPEARANCE CHECK	
	TERMINAL INSERTION INTO WIRES
	BIND BUNDLING
	TUBE ATTACHING
	THERMAL CONTRACTION TUBE ATTACHING
	SPIRAL LAP BUNDLING
	RELAY CONNECTOR ATTACHING
	SERGE KILLER ATTACHING
	CIRCLE CORE ATTACHING
	BRACKET ATTACHING
	CONTINUITY CHECK
	APPEARANCE CHECK

FIG. 5

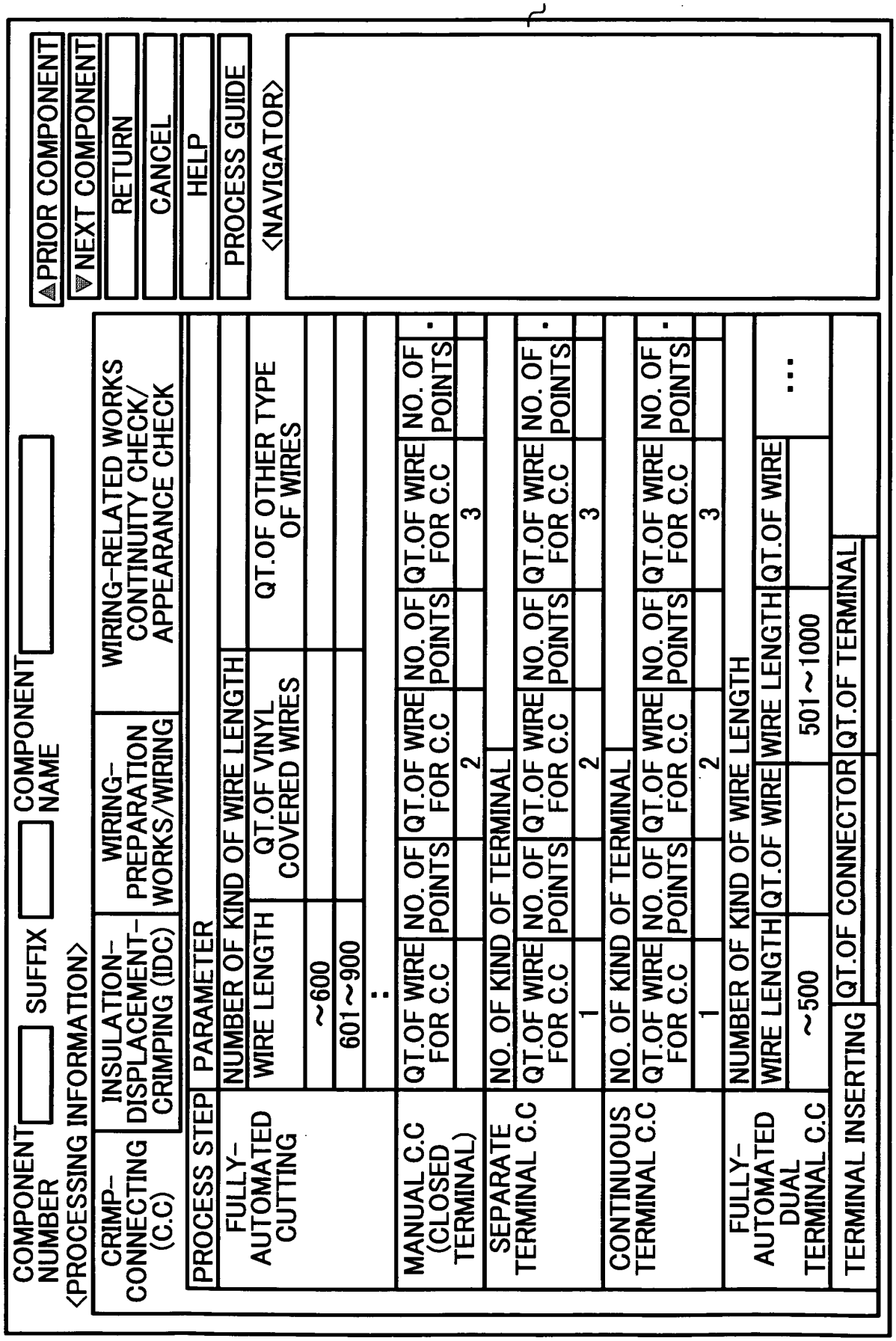

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
<PROCESSING INFORMATION>
CRIMP-CONNECTING (C.C)
INSULATION-DISPLACEMENT-CRIMPING (IDC)
WIRING-PREPARATION WORKS/WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/ APPEARANCE CHECK
PRIOR COMPONENT
NEXT COMPONENT
RETURN
CANCEL
HELP
PROCESS GUIDE
<NAVIGATOR>
b1
PROCESS STEP
PARAMETER
FULLY-AUTOMATED CUTTING
NUMBER OF KIND OF WIRE LENGTH
WIRE LENGTH
QT.OF VINYL COVERED WIRES
QT.OF OTHER TYPE OF WIRES
~600
601~900
MANUAL C.C (CLOSED TERMINAL)
QT.OF WIRE FOR C.C
NO. OF POINTS
2
3
SEPARATE TERMINAL C.C
NO. OF KIND OF TERMINAL
1
CONTINUOUS TERMINAL C.C
FULLY-AUTOMATED DUAL TERMINAL C.C
WIRE LENGTH
QT.OF WIRE
~500
501~1000
TERMINAL INSERTING
QT.OF CONNECTOR
QT.OF TERMINAL

FIG. 6

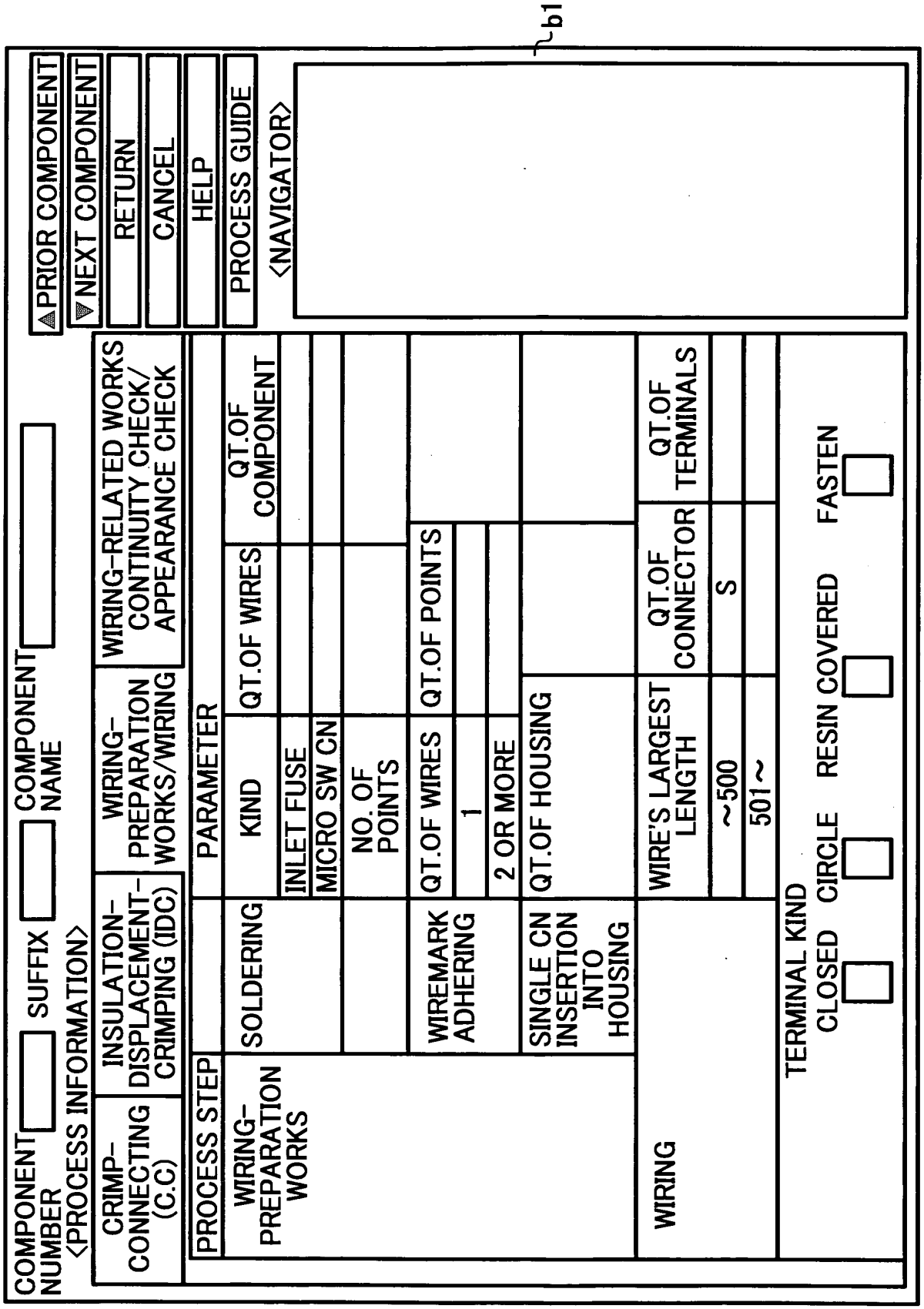

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
<PROCESS INFORMATION>
CRIMP-CONNECTING (C.C)
INSULATION-DISPLACEMENT-CRIMPING (IDC)
WIRING-PREPARATION WORKS/WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/ APPEARANCE CHECK
PARAMETER
PROCESS STEP
WIRING-PREPARATION WORKS
SOLDERING
WIREMARK ADHERING
SINGLE CN INSERTION INTO HOUSING
KIND
INLET FUSE
MICRO SW CN
NO. OF POINTS
QT.OF WIRES
1
2 OR MORE
QT.OF HOUSING
QT.OF WIRES
QT.OF POINTS
QT.OF COMPONENT
WIRING
WIRE'S LARGEST LENGTH
~500
501~
QT.OF CONNECTOR
S
QT.OF TERMINALS
TERMINAL KIND
CLOSED
CIRCLE
RESIN COVERED
FASTEN
PRIOR COMPONENT
NEXT COMPONENT
RETURN
CANCEL
HELP
PROCESS GUIDE
<NAVIGATOR>
b1

FIG. 7

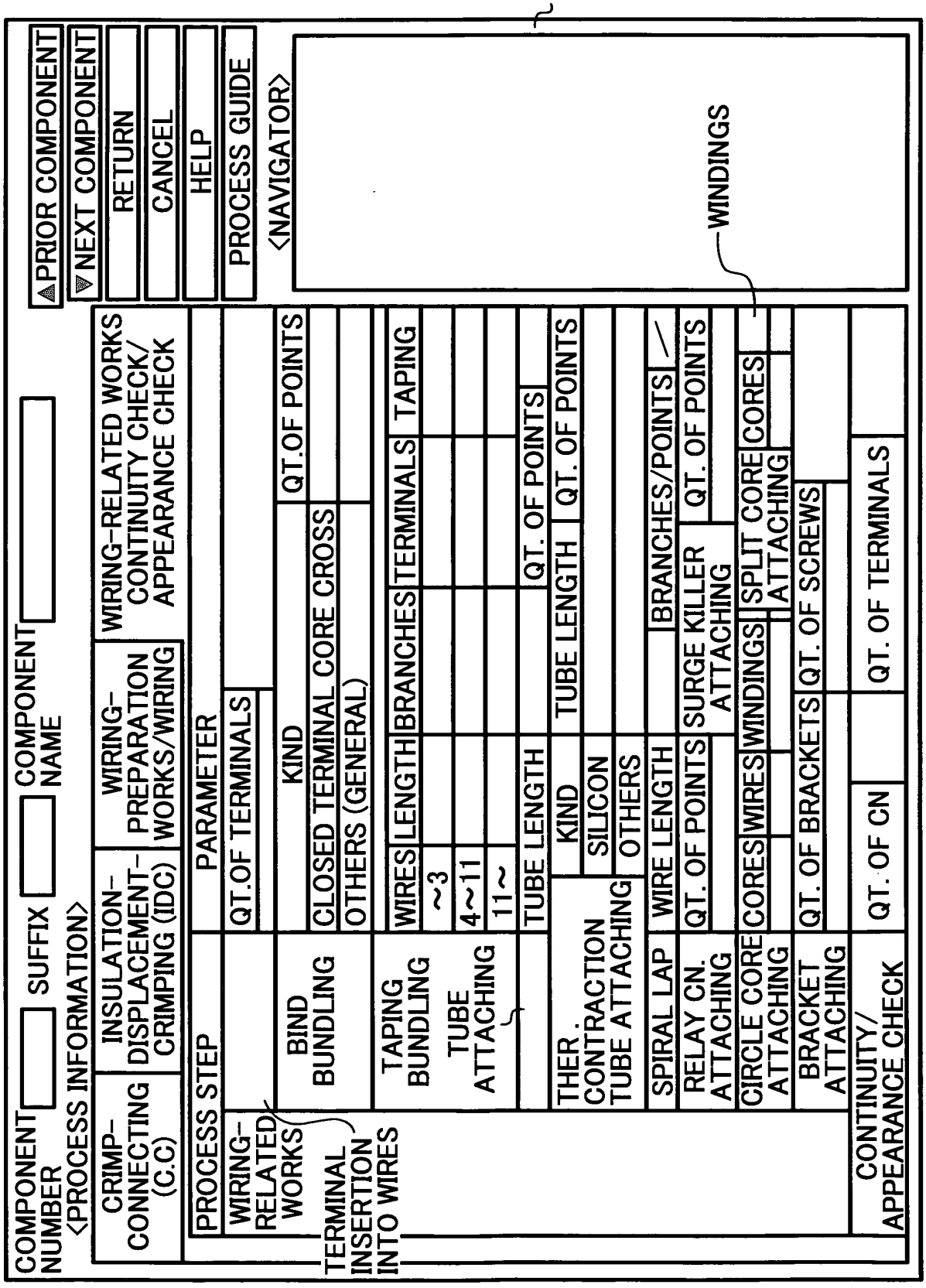

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
<PROCESS INFORMATION>
CRIMP-CONNECTING (C.C)
INSULATION-DISPLACEMENT-CRIMPING (IDC)
WIRING-PREPARATION WORKS/WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/ APPEARANCE CHECK
PROCESS STEP
PARAMETER
WIRING-RELATED WORKS
TERMINAL INSERTION INTO WIRES
QT.OF TERMINALS
BIND BUNDLING
KIND
QT.OF POINTS
CLOSED TERMINAL CORE CROSS
OTHERS (GENERAL)
TAPING BUNDLING
WIRES
LENGTH
BRANCHES
TERMINALS
TAPING
~3
4~11
11~
TUBE ATTACHING
TUBE LENGTH
QT. OF POINTS
THER. CONTRACTION TUBE ATTACHING
KIND
TUBE LENGTH
QT. OF POINTS
SILICON
OTHERS
SPIRAL LAP
WIRE LENGTH
BRANCHES/POINTS
RELAY CN. ATTACHING
QT. OF POINTS
SURGE KILLER ATTACHING
QT. OF POINTS
CIRCLE CORE ATTACHING
CORES
WIRES
WINDINGS
SPLIT CORE ATTACHING
CORES
BRACKET ATTACHING
QT. OF BRACKETS
QT. OF SCREWS
CONTINUITY/ APPEARANCE CHECK
QT. OF CN
QT. OF TERMINALS
PRIOR COMPONENT
NEXT COMPONENT
RETURN
CANCEL
HELP
PROCESS GUIDE
<NAVIGATOR>
WINDINGS
b1

FIG. 8

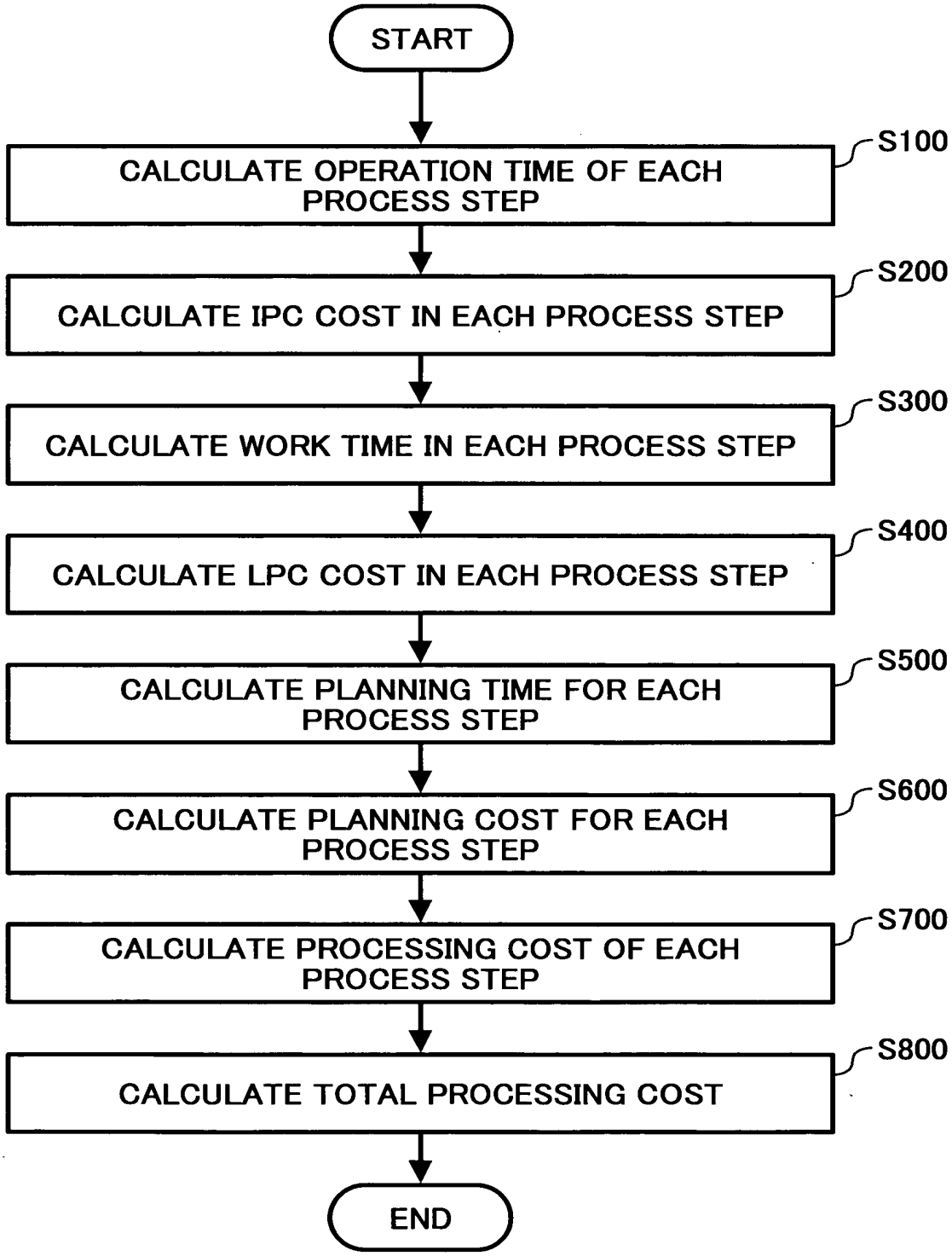

START
CALCULATE OPERATION TIME OF EACH PROCESS STEP
S100
CALCULATE IPC COST IN EACH PROCESS STEP
S200
CALCULATE WORK TIME IN EACH PROCESS STEP
S300
CALCULATE LPC COST IN EACH PROCESS STEP
S400
CALCULATE PLANNING TIME FOR EACH PROCESS STEP
S500
CALCULATE PLANNING COST FOR EACH PROCESS STEP
S600
CALCULATE PROCESSING COST OF EACH PROCESS STEP
S700
CALCULATE TOTAL PROCESSING COST
S800
END

FIG. 9

	QT. OF POLES (PINS ON CHILD SIDE)				
	2	3	4	5～7	8～15
～200	・・・	・・・	・・・	・・・	・・・
201～500	・・・	・・・	・・・	・・・	・・・
501～1000	・・・	・・・	・・・	・・・	・・・
1001～	・・・	・・・	・・・	・・・	・・・

FIG. 10

P \ L		C	200	201 | 500	501 | 1000	1001 |
11 POLES OR MORE	1 PER UNIT	2	...	...	...	...
		3	...	...	...	...
		4	...	...	...	...
		5	...	...	...	...
		6	...	...	...	...
		7	...	...	...	...
4～10 POLES	2 PER UNIT	2	...	...	...	...
		3	...	...	...	...
		4	...	...	...	...

L : WIRE' S LARGEST LENGTH

P : QUANTITY OF CONNECTORS ON PARENT SIDE

C : QUANTITY OF CONNECTORS ON CHILD SIDE

FIG. 11

	QT. OF POLES (PINS ON CHILD SIDE)					
	2	3	4	6～7	8～10	11～15
～200	・・・	・・・	・・・	・・・	・・・	・・・
201～500	・・・	・・・	・・・	・・・	・・・	・・・
501～1000	・・・	・・・	・・・	・・・	・・・	・・・
1001～	・・・	・・・	・・・	・・・	・・・	・・・

FIG. 12

WIRE LENGTH	OPERATION TIME ESTIMATION FUNCTION	
	VINYL-COVERED	OTHERS
～600	OPERATION TIME=0.9*WIRES	OPERATION TIME=1.1*WIRES
601～900	・・・	・・・
901～1200	・・・	・・・
1201～1500	・・・	・・・
1501～1800	・・・	・・・
1801～2000	・・・	・・・
2101～2400	・・・	・・・
2401～3000	・・・	・・・

FIG. 13

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME=1.4+8.1*NO.OF POINTS FOR CC
2	...
3	...
4	...
5	...
6	...
7	...
8	...
9	...

FIG. 14

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME=4.4*NO.OF POINTS FOR CC
2	...
3	...

FIG. 15

QUANTITY OF WIRES FOR CC	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME=1.2*NO.OF POINTS FOR CC
2	・・・
3	・・・

FIG. 16

WIRE LENGTH	OPERATION TIME ESTIMATION FUNCTION
～600	OPERATION TIME=1.2*QT.OF WIRES
601～900	・・・
901～1200	・・・
1201～1500	・・・
1501～1800	・・・
1801～2000	・・・
2101～2400	・・・
2401～3000	・・・

FIG. 17

KIND	OPERATION TIME ESTIMATION FUNCTION
INLET,FUSE HOLDER	OPERATION TIME = 14.6*QT.OF WIRES+5.4*QT.OF COMPONENTS
MICRO SW,CONNECTOR	...

FIG. 18

QUANTITY OF WIRES	OPERATION TIME ESTIMATION FUNCTION
1	OPERATION TIME = 3.2*NO.OF POINTS WIREMARK ADHERING
2 OR MORE	...

FIG. 19

WIRE'S LARGEST LENGTH	OPERATION TIME ESTIMATION FUNCTION
~500	OPERATION TIME = 0.7+1.0*NO.OF CONNECTORS+QT.TERMINALS
501~	...

FIG. 20

KIND	OPERATION TIME ESTIMATION FUNCTION
80,100,150	OPERATION TIME = 3.2*NO.OF POINTS FOR BIND
CLOSED TERMINAL, CORE CROSS FIXING	...

FIG. 21

QUANTITY OF WIRES	OPERATION TIME ESTIMATION FUNCTION
3 OR LESS	OPERATION TIME = 2.9*NO.OF POINTS FOR TAPING +0.043*TAPING LENGTH+21*(NUMBER OF BRACHES+QT.OF CLOSED TERMINAL)
4 TO 10	...
11 OR LESS	...

FIG. 22

TUBE KIND	OPERATION TIME ESTIMATION FUNCTION
SILICON TUBE	OPERATION TIME = 5.4*NO.OF POINTS FOR TUBE ATTACHING +0.1*TUBE LENGTH
OTHERS	OPERATION TIME = 5.4*NO.OF POINTS FOR ATTACHING OTHERS THAN TUBE+0.1*LENGTH OF OTHERS THAN TUBE

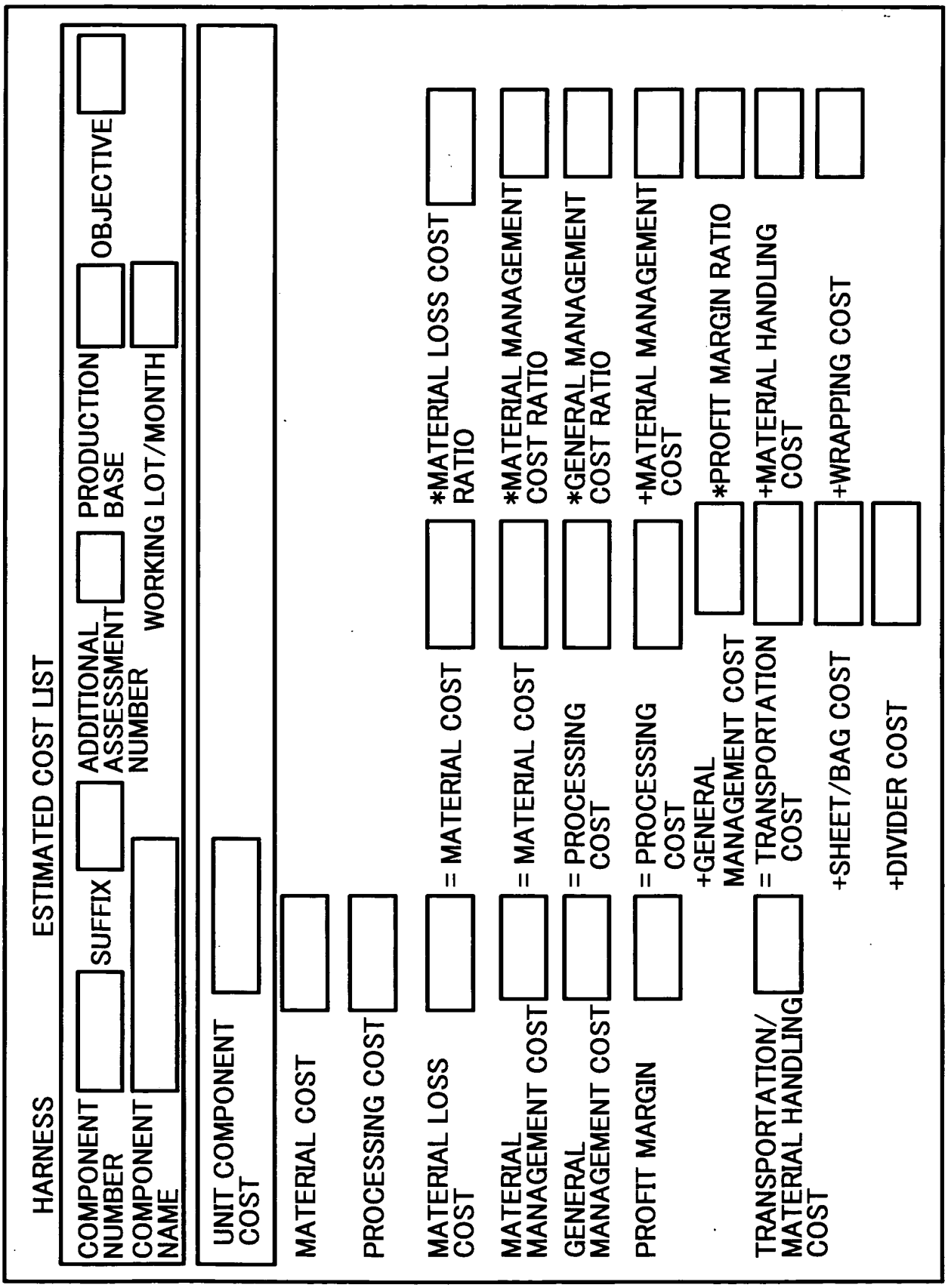
FIG. 23

PROCESS STEP	TIME FACTOR
FULLY-AUTOMATED DUAL TERMINAL C.C	1.12
CONTINUOUS TERMINAL C.C	1.16
SEPARATE TERMINAL C.C	...
FULLY-AUTOMATED DUAL TERMINAL IDC (MULTI)	...
FULLY-AUTOMATED DUAL TERMINAL IDC (COPPER FOIL SHIELD)	...
FULLY-AUTOMATED DUAL TERMINAL IDC (SIMPLE)	...
SEMI-AUTOMATED IDC	...
FULLY-AUTOMATED CUTTING	...

FIG. 24

	IPC COST RATIO (YEN/Hr)	LPC COST RATIO (YEN/Hr)	TOTAL (YEN/Hr)	IPC COST RATIO (YEN/sec)	LPC COST RATIO (YEN/sec)	TOTAL (YEN/sec)
FULLY-AUTOMATED CUTTING						
MANUAL C.C						
SEPARATED TERMINAL C.C						
CONTINUOUS TERMINAL C.C						
FULLY AUTOMATED-DUAL TERMINAL C.C						
TERMINAL INSERTING						
SAIDC						
FADTIDC (MULTI)						
FADTIDC (SIMPLE)						
FADTIDC (COPPER FOIL SHIELD)						
SOLDERING						
INSULATION SLEEVE INSERTION						
WIRE MARK ADHERING						
SINGLE CN INSERTION INTO HOUSING						
WIRING						
TERMINAL INSERTION INTO WIRES						
BIND BUNDLING						
TUBE ATTACHING						
THERMAL CONTRACTION TUBE ATTACHING						
SPIRAL LAP BUNDLING						
RELAY CONNECTOR ATTACHING						
SERGE KILLER ATTACHING						
CIRCLE CORE ATTACHING						
BRACKET ATTACHING						
CONTINUITY CHECK						
APPEARANCE CHECK						

FIG. 25


HARNESS
ESTIMATED COST LIST
COMPONENT NUMBER
SUFFIX
ADDITIONAL ASSESSMENT NUMBER
PRODUCTION BASE
OBJECTIVE
COMPONENT NAME
WORKING LOT/MONTH
UNIT COMPONENT COST
MATERIAL COST
PROCESSING COST
MATERIAL LOSS COST
= MATERIAL COST
*MATERIAL LOSS COST RATIO
MATERIAL MANAGEMENT COST
= MATERIAL COST
*MATERIAL MANAGEMENT COST RATIO
GENERAL MANAGEMENT COST
= PROCESSING COST
*GENERAL MANAGEMENT COST RATIO
PROFIT MARGIN
= PROCESSING COST
+MATERIAL MANAGEMENT COST
+GENERAL MANAGEMENT COST
*PROFIT MARGIN RATIO
TRANSPORTATION/ MATERIAL HANDLING COST
= TRANSPORTATION COST
+MATERIAL HANDLING COST
+SHEET/BAG COST
+WRAPPING COST
+DIVIDER COST

HARNESS ESTIMATED COST LIST

COMPONENT NUMBER		SUFFIX		ADDITIONAL ASSESSMENT NUMBER		PRODUCTION BASE		OBJECTIVE	
COMPONENT NAME						WORKING LOT/MONTH			

PROCESSING INFORMATION

PROCESSING COST

		PLANNING COST	PLANNING TIME	IPC COST	TIME	QT. OF STEPS	LPC COST	PROCESSING COST
1	FADTIDIC MACHINE (SIMPLE)							
2	WIRING							
3	BIND BUNDLING							
4	CIRCLE CORE ATTACHING							
5	CONTINUITY CHECK							
6	APPEARANCE CHECK							

FIG. 26

App No.: 10/667,198 Docket No.: 116692004600
Inventor: Michikazu SAKURAI, et al.
Title: ESTIMATION SYSTEM, ESTIMATION METHOD, AND PROGRAM FOR HARNESS PROCESSING

FIG. 27

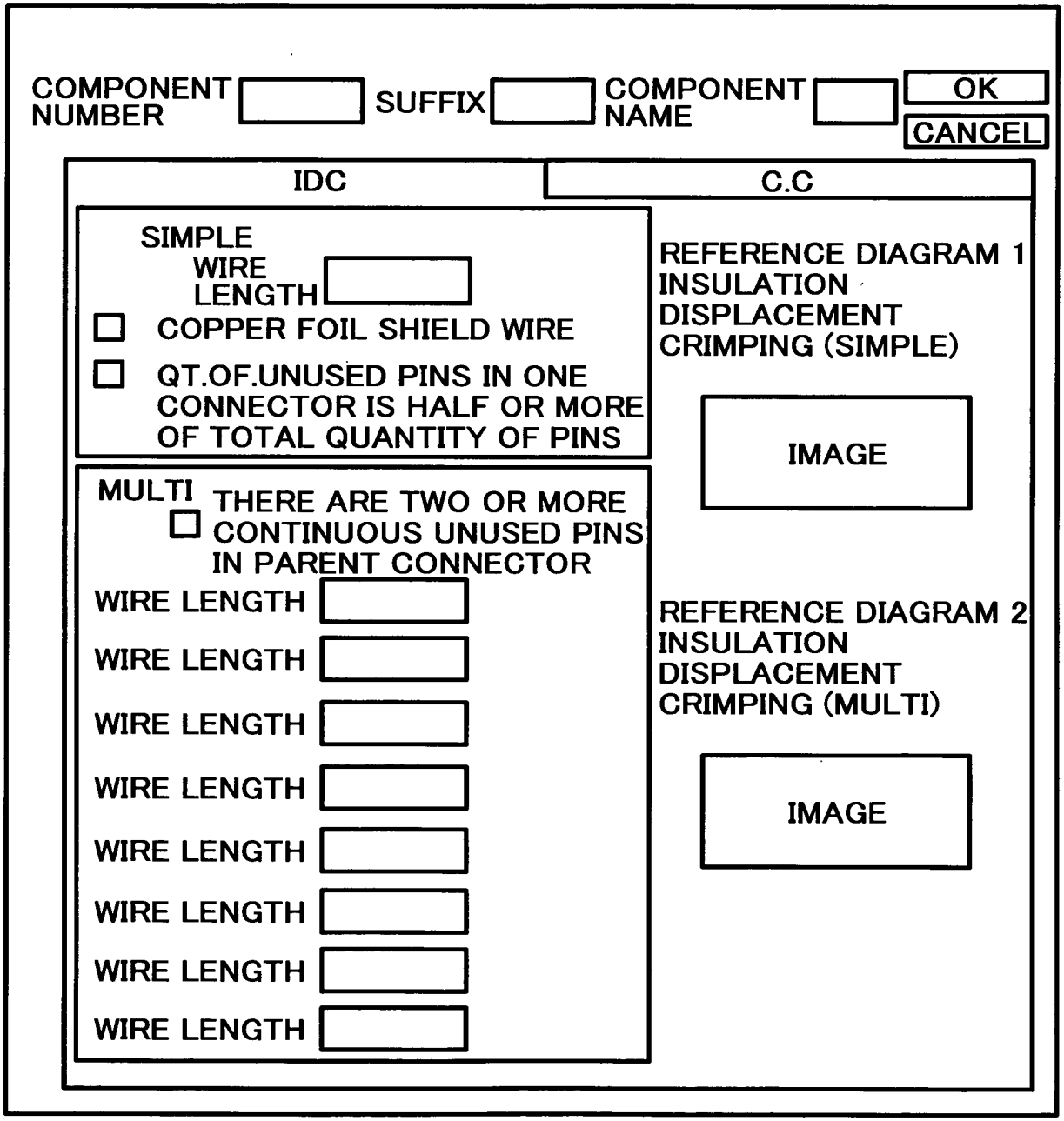

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
OK
CANCEL
IDC
C.C
SIMPLE
WIRE LENGTH
COPPER FOIL SHIELD WIRE
QT.OF.UNUSED PINS IN ONE CONNECTOR IS HALF OR MORE OF TOTAL QUANTITY OF PINS
REFERENCE DIAGRAM 1
INSULATION DISPLACEMENT CRIMPING (SIMPLE)
IMAGE
MULTI
THERE ARE TWO OR MORE CONTINUOUS UNUSED PINS IN PARENT CONNECTOR
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
WIRE LENGTH
REFERENCE DIAGRAM 2
INSULATION DISPLACEMENT CRIMPING (MULTI)
IMAGE

FIG. 28

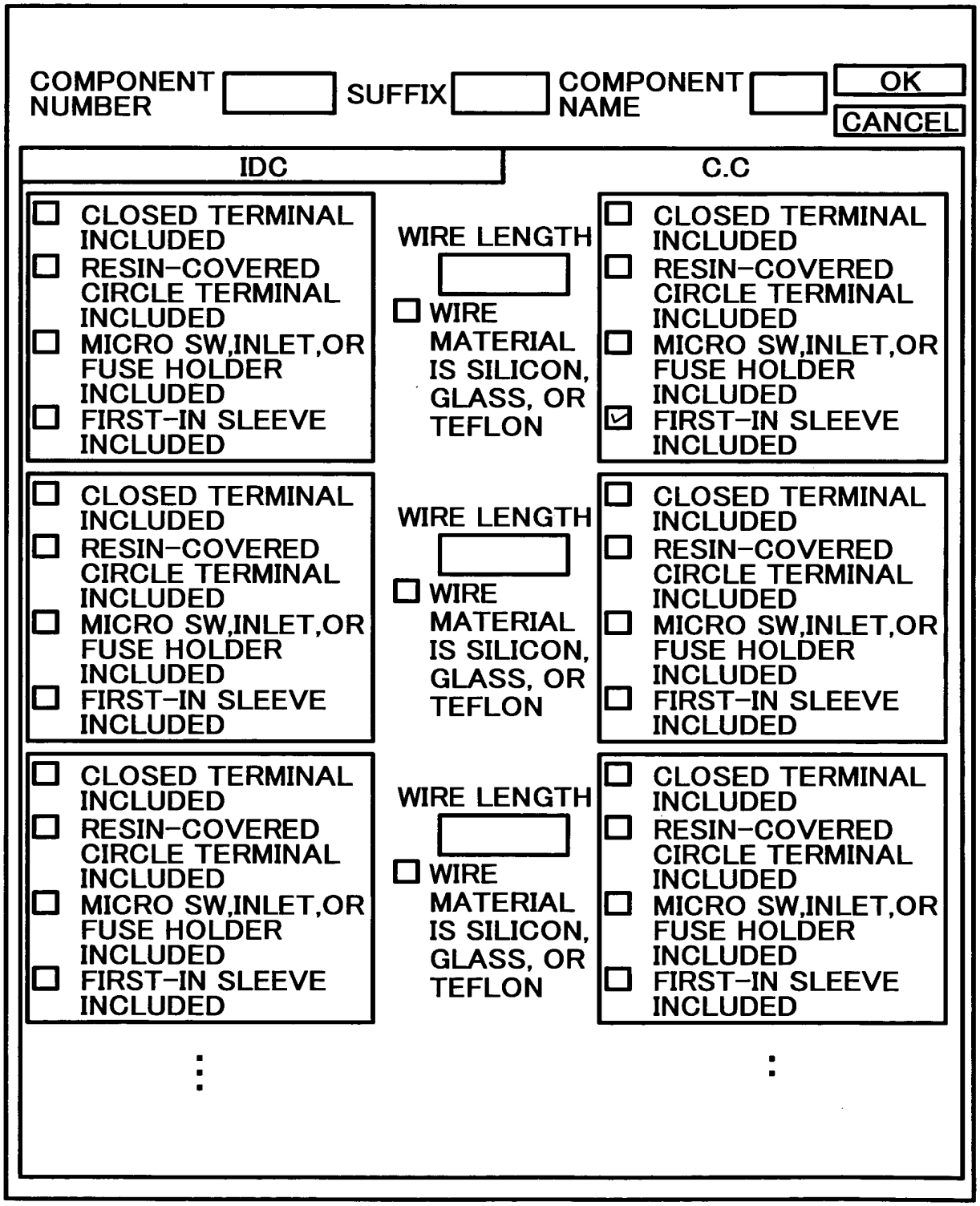

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
OK
CANCEL
IDC
C.C
CLOSED TERMINAL INCLUDED
RESIN-COVERED CIRCLE TERMINAL INCLUDED
MICRO SW,INLET,OR FUSE HOLDER INCLUDED
FIRST-IN SLEEVE INCLUDED
WIRE LENGTH
WIRE MATERIAL IS SILICON, GLASS, OR TEFLON

FIG. 29

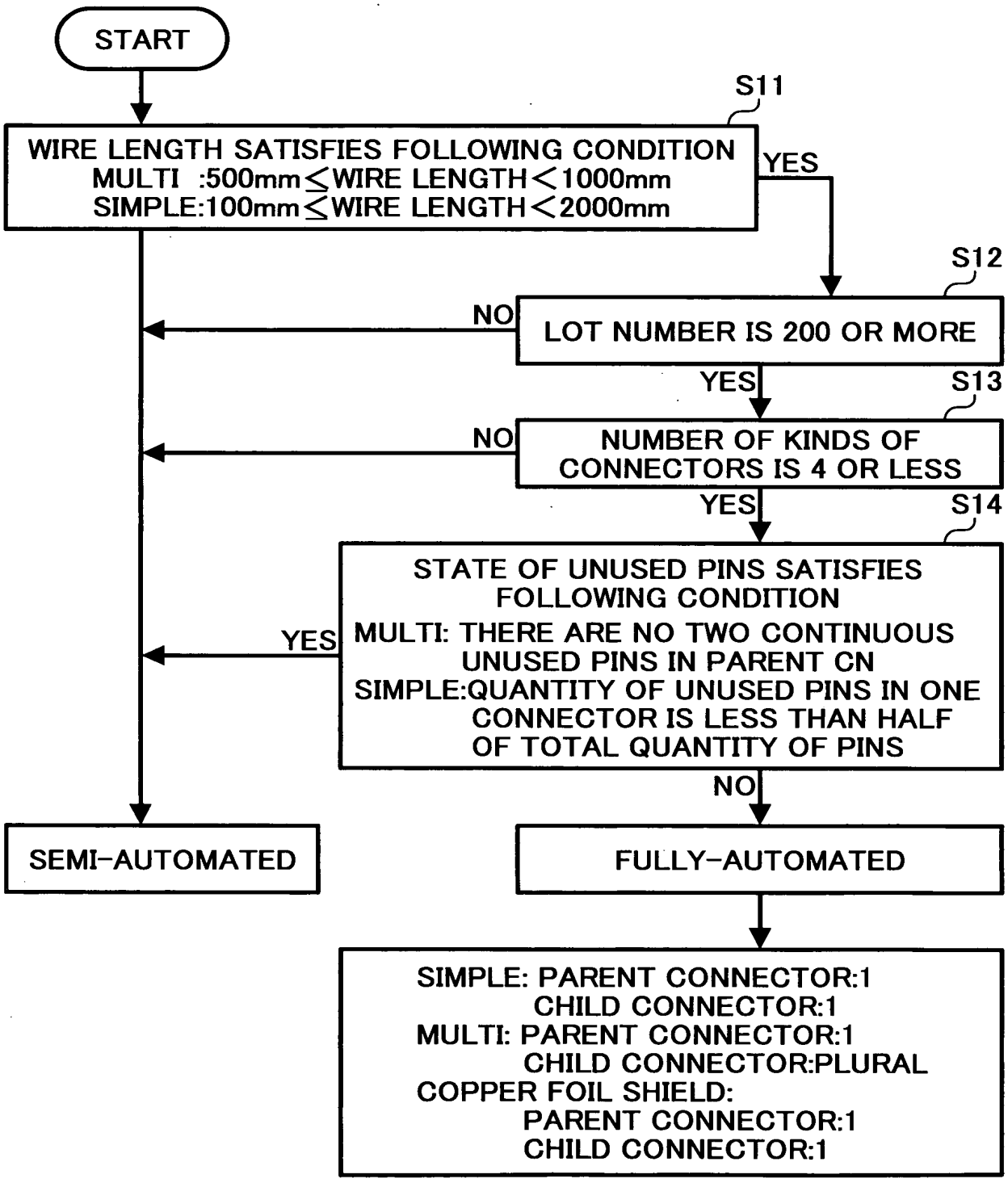

START
S11
WIRE LENGTH SATISFIES FOLLOWING CONDITION
MULTI :500mm≦WIRE LENGTH<1000mm
SIMPLE:100mm≦WIRE LENGTH<2000mm
YES
S12
NO
LOT NUMBER IS 200 OR MORE
YES
S13
NO
NUMBER OF KINDS OF CONNECTORS IS 4 OR LESS
YES
S14
STATE OF UNUSED PINS SATISFIES FOLLOWING CONDITION
YES
MULTI: THERE ARE NO TWO CONTINUOUS UNUSED PINS IN PARENT CN
SIMPLE:QUANTITY OF UNUSED PINS IN ONE CONNECTOR IS LESS THAN HALF OF TOTAL QUANTITY OF PINS
NO
SEMI-AUTOMATED
FULLY-AUTOMATED
SIMPLE: PARENT CONNECTOR:1
CHILD CONNECTOR:1
MULTI: PARENT CONNECTOR:1
CHILD CONNECTOR:PLURAL
COPPER FOIL SHIELD:
PARENT CONNECTOR:1
CHILD CONNECTOR:1

FIG. 30

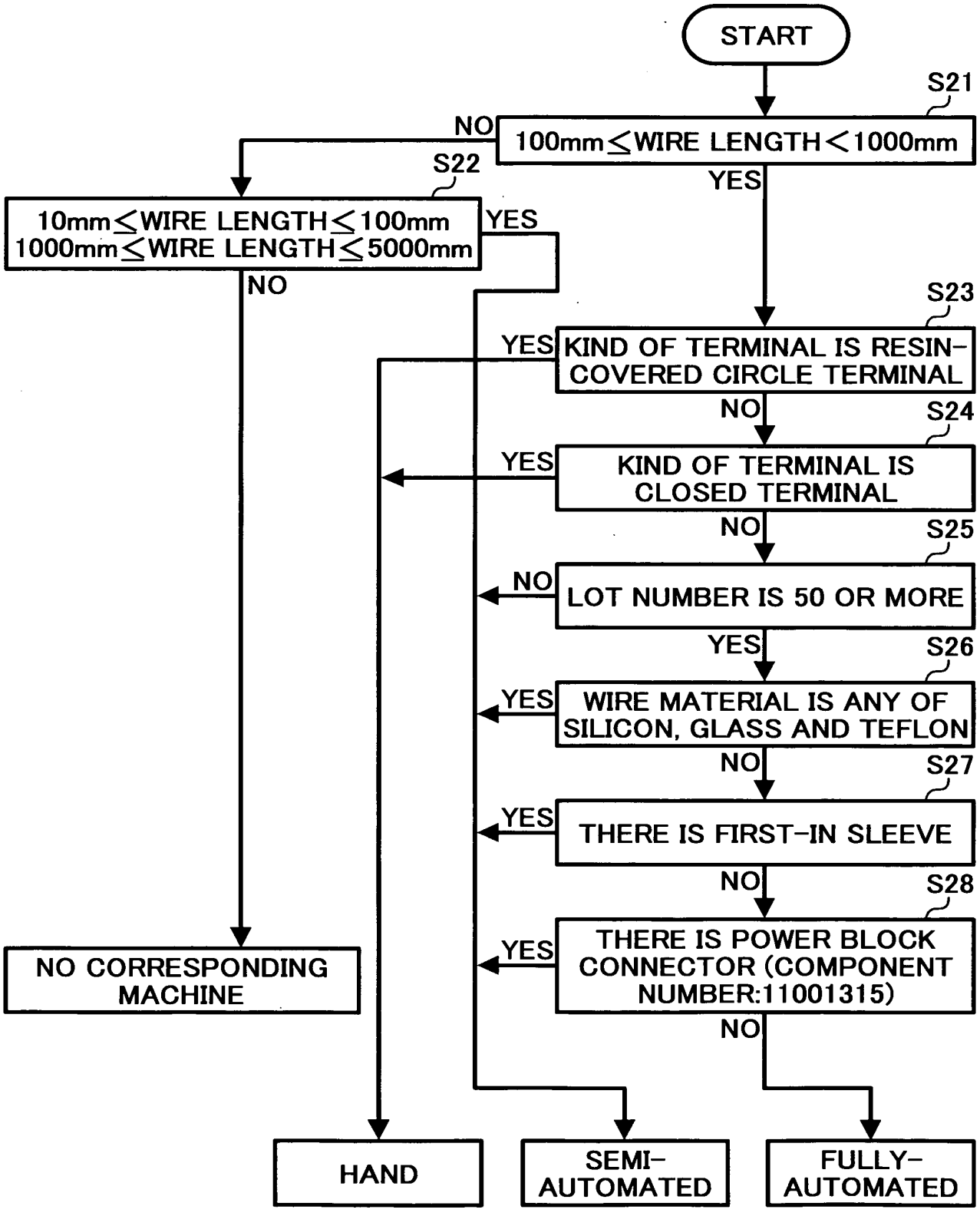

START
S21
100mm≤WIRE LENGTH<1000mm
NO
YES
S22
10mm≤WIRE LENGTH≤100mm
1000mm≤WIRE LENGTH≤5000mm
YES
NO
S23
KIND OF TERMINAL IS RESIN-COVERED CIRCLE TERMINAL
YES
NO
S24
KIND OF TERMINAL IS CLOSED TERMINAL
YES
NO
S25
LOT NUMBER IS 50 OR MORE
NO
YES
S26
WIRE MATERIAL IS ANY OF SILICON, GLASS AND TEFLON
YES
NO
S27
THERE IS FIRST-IN SLEEVE
YES
NO
S28
THERE IS POWER BLOCK CONNECTOR (COMPONENT NUMBER:11001315)
YES
NO
NO CORRESPONDING MACHINE
HAND
SEMI-AUTOMATED
FULLY-AUTOMATED

FIG. 31

	RESIN-COVERED TERMINAL / CLOSED TERMINAL	HAND	C.C		
			40≦L<45 5000≦L<9900	MICRO-SW,INLET, FUSE	SLEEVE
SAIDC					
FULLY-AUTOMATED CUTTING		◉	◉	◉	◉
MANUAL C.C					
SEPARATED TERMINAL C.C		◉			
CONTINUOUS TERMINAL C.C			◉		◉
FULLY AUTOMATED-DUAL TERMINAL C.C	◉				
FADTIDC					
FADTIDC (SIMPLE)					
FADTIDC (MULTI)					
FADTIDC (COPPER FOIL SHIELD)					
WIRING-PREPARATION WORKS					
SOLDERING				◉	
INSULATION SLEEVE INSERTION					◉
WIRE MARK ADHERING	○	○	○		
TERMINAL INSERTING	○		○		○
WIRING	○	○	○	○	
SINGLE CN INSERTION INTO HOUSING			○		○
WIRING-RELATED WORKS					
TERMINAL INSERTION INTO WIRES			○		○
BIND BUNDLING		○	○	○	○
TAPING BUNDLING		○	○	○	○
TUBE ATTACHING		○	○	○	○
THERMAL CONTRACTION TUBE ATTACHING		○	○	◉	○
SPIRAL LAP BUNDLING		○	○	○	○
RELAY CONNECTOR ATTACHING			○		
SURGE KILLER ATTACHING		○	○		○
CORE ATTACHING		○	○	○	○
BRACKET ATTACHING		○	○	○	○
CONTINUITY CHECK	◉	◉	◉	◉	◉
APPEARANCE CHECK	○	◉	◉	◉	◉

FIG. 32

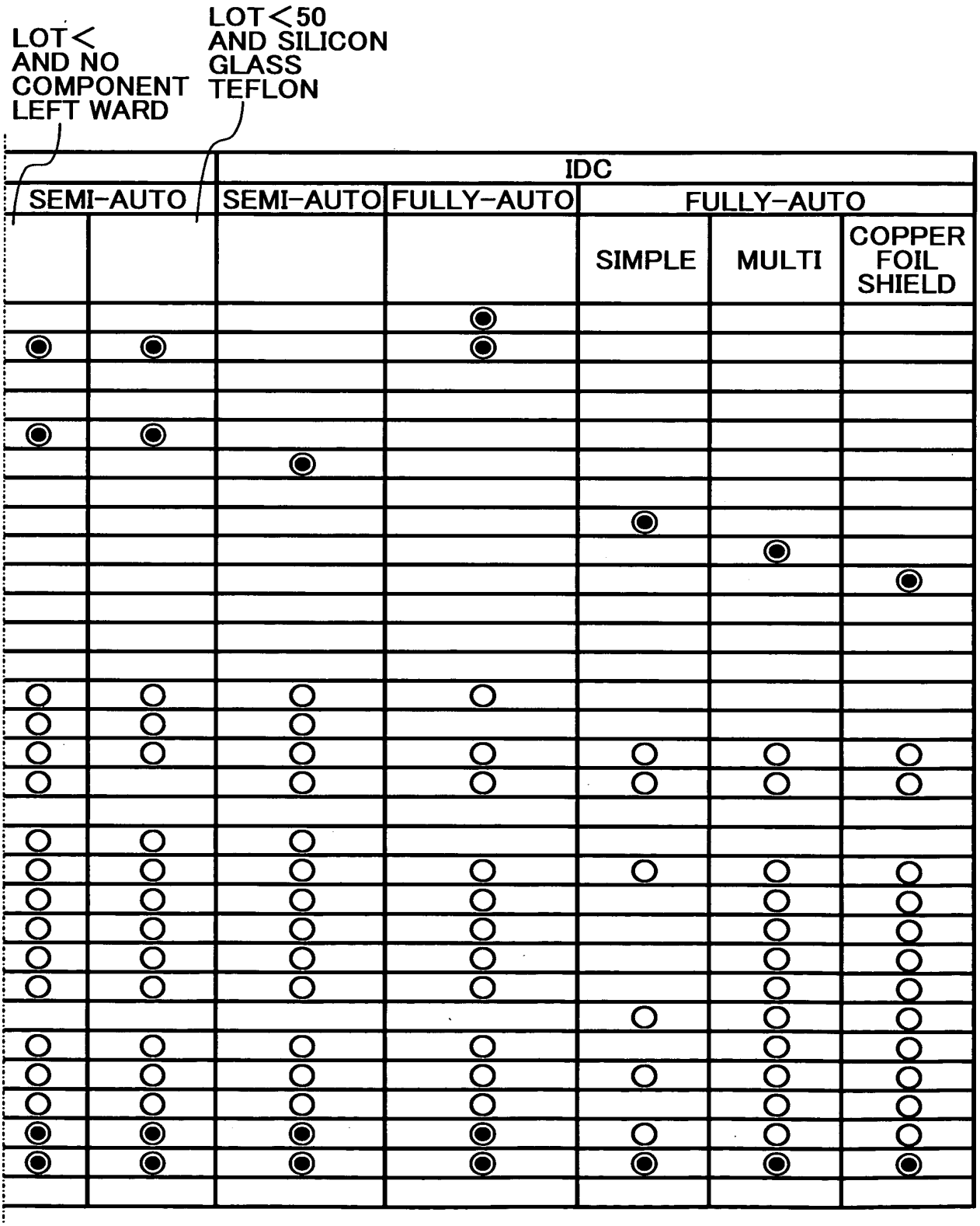

LOT< AND NO COMPONENT LEFT WARD
LOT<50 AND SILICON GLASS TEFLON
IDC
SEMI-AUTO
SEMI-AUTO
FULLY-AUTO
FULLY-AUTO
SIMPLE
MULTI
COPPER FOIL SHIELD

FIG. 33

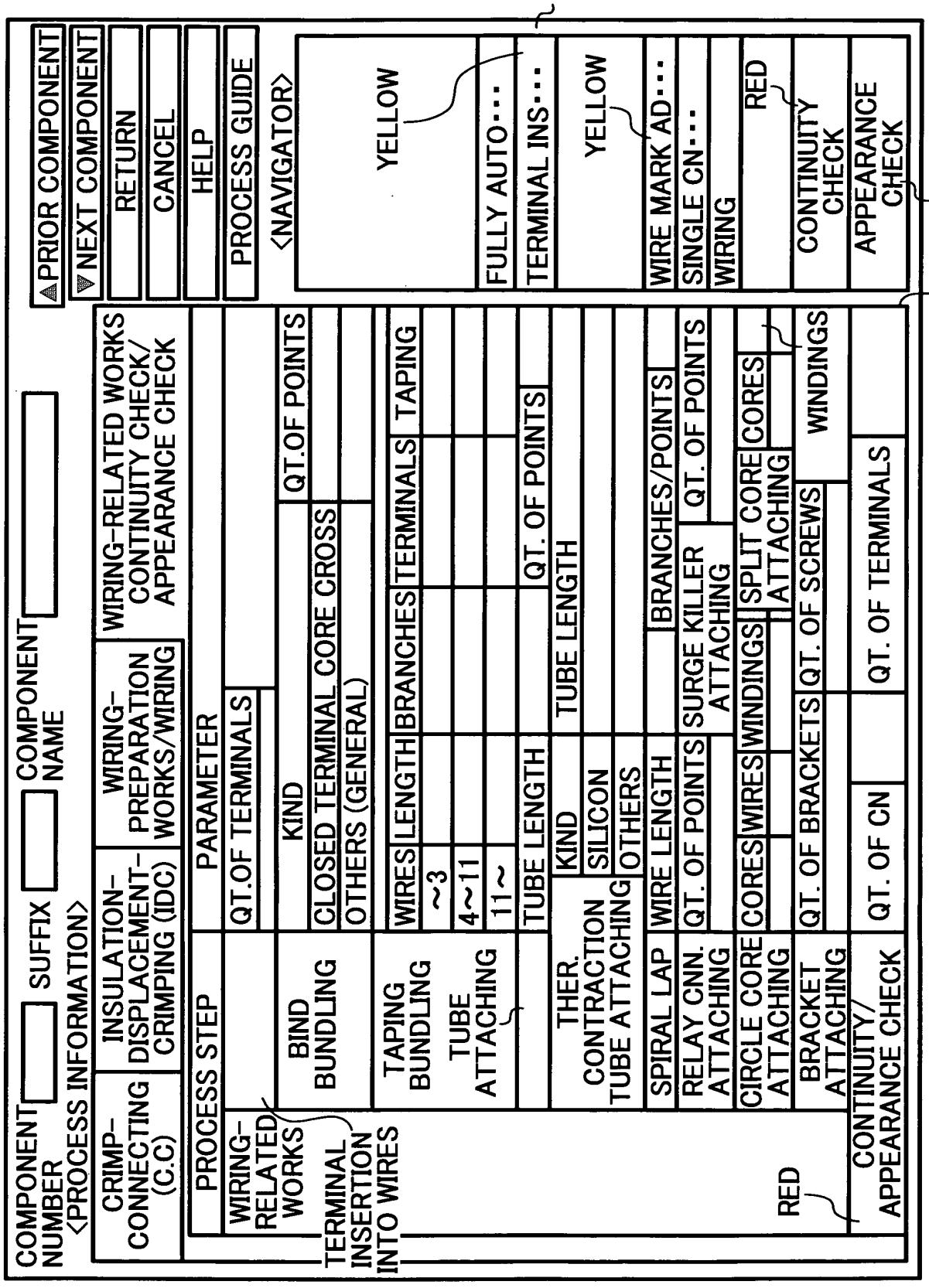

COMPONENT NUMBER
SUFFIX
COMPONENT NAME
<PROCESS INFORMATION>
CRIMP-CONNECTING (C.C)
INSULATION-DISPLACEMENT-CRIMPING (IDC)
WIRING-PREPARATION WORKS/WIRING
WIRING-RELATED WORKS CONTINUITY CHECK/ APPEARANCE CHECK
PROCESS STEP
PARAMETER
WIRING-RELATED WORKS
QT.OF TERMINALS
TERMINAL INSERTION INTO WIRES
BIND BUNDLING
KIND
QT.OF POINTS
CLOSED TERMINAL CORE CROSS
OTHERS (GENERAL)
TAPING BUNDLING
TUBE ATTACHING
WIRES
LENGTH
BRANCHES
TERMINALS
TAPING
~3
4~11
11~
TUBE LENGTH
QT. OF POINTS
THER. CONTRACTION TUBE ATTACHING
KIND
SILICON
OTHERS
TUBE LENGTH
SPIRAL LAP
WIRE LENGTH
BRANCHES/POINTS
RELAY CNN. ATTACHING
QT. OF POINTS
SURGE KILLER ATTACHING
QT. OF POINTS
CIRCLE CORE ATTACHING
CORES
WIRES
WINDINGS
SPLIT CORE ATTACHING
CORES
BRACKET ATTACHING
QT. OF BRACKETS
QT. OF SCREWS
WINDINGS
CONTINUITY/ APPEARANCE CHECK
QT. OF CN
QT. OF TERMINALS
RED
RED
RED
YELLOW
YELLOW
PRIOR COMPONENT
NEXT COMPONENT
RETURN
CANCEL
HELP
PROCESS GUIDE
<NAVIGATOR>
YELLOW
FULLY AUTO・・・
TERMINAL INS・・・
YELLOW
WIRE MARK AD・・・
SINGLE CN・・・
WIRING
RED
CONTINUITY CHECK
APPEARANCE CHECK

FIG. 34

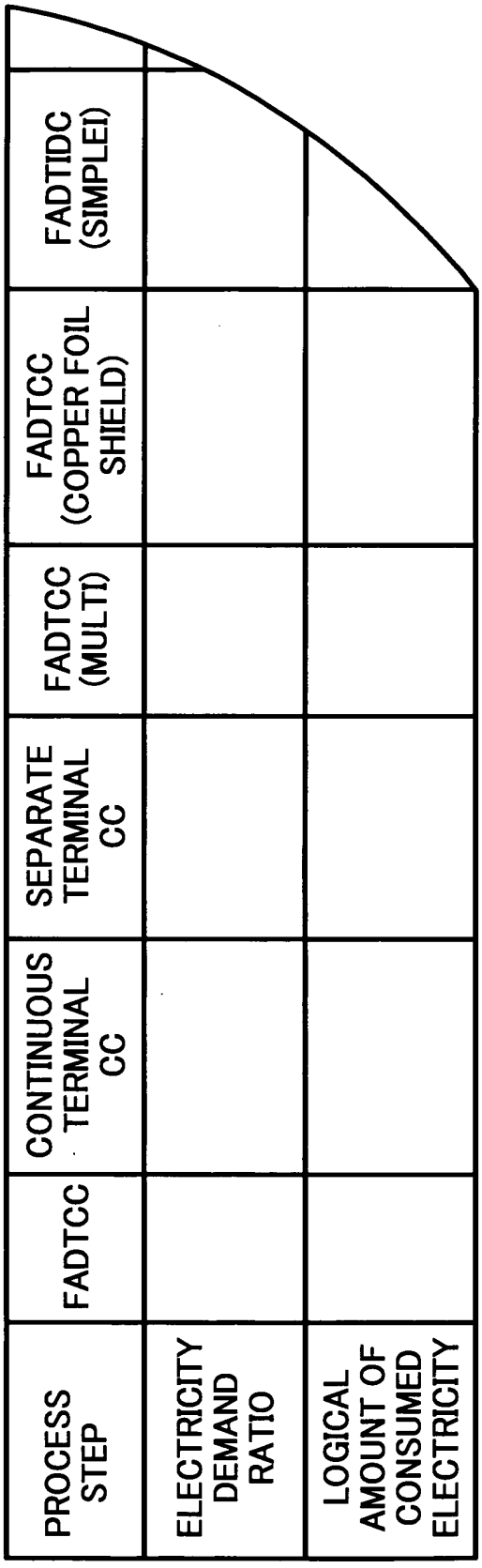

PROCESS STEP
FADTCC
CONTINUOUS TERMINAL CC
SEPARATE TERMINAL CC
FADTCC (MULTI)
FADTCC (COPPER FOIL SHIELD)
FADTIDC (SIMPLEI)
ELECTRICITY DEMAND RATIO
LOGICAL AMOUNT OF CONSUMED ELECTRICITY

FIG. 35

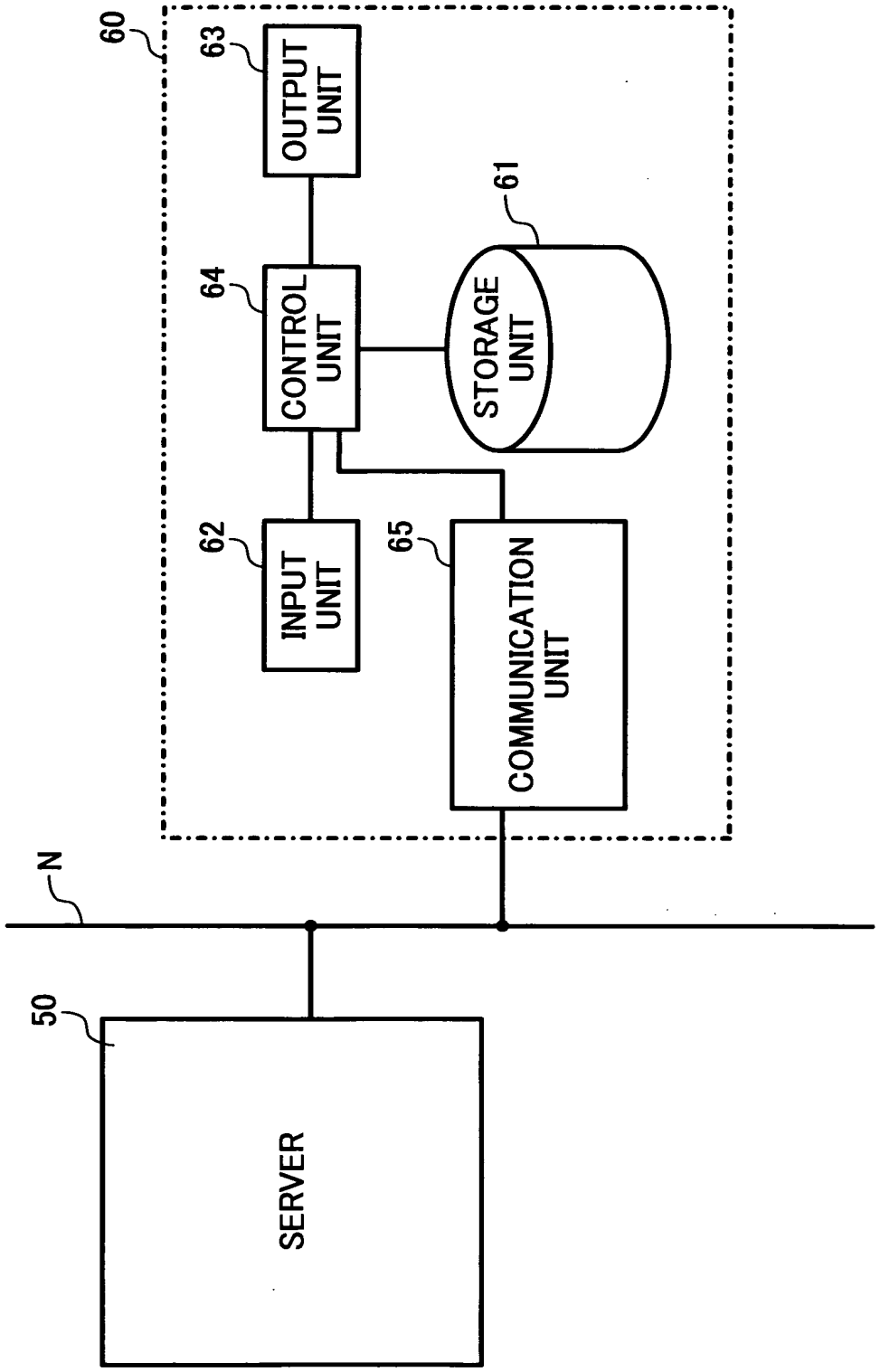

60
63
OUTPUT UNIT
61
64
CONTROL UNIT
STORAGE UNIT
62
INPUT UNIT
65
COMMUNICATION UNIT
N
50
SERVER

FIG. 36

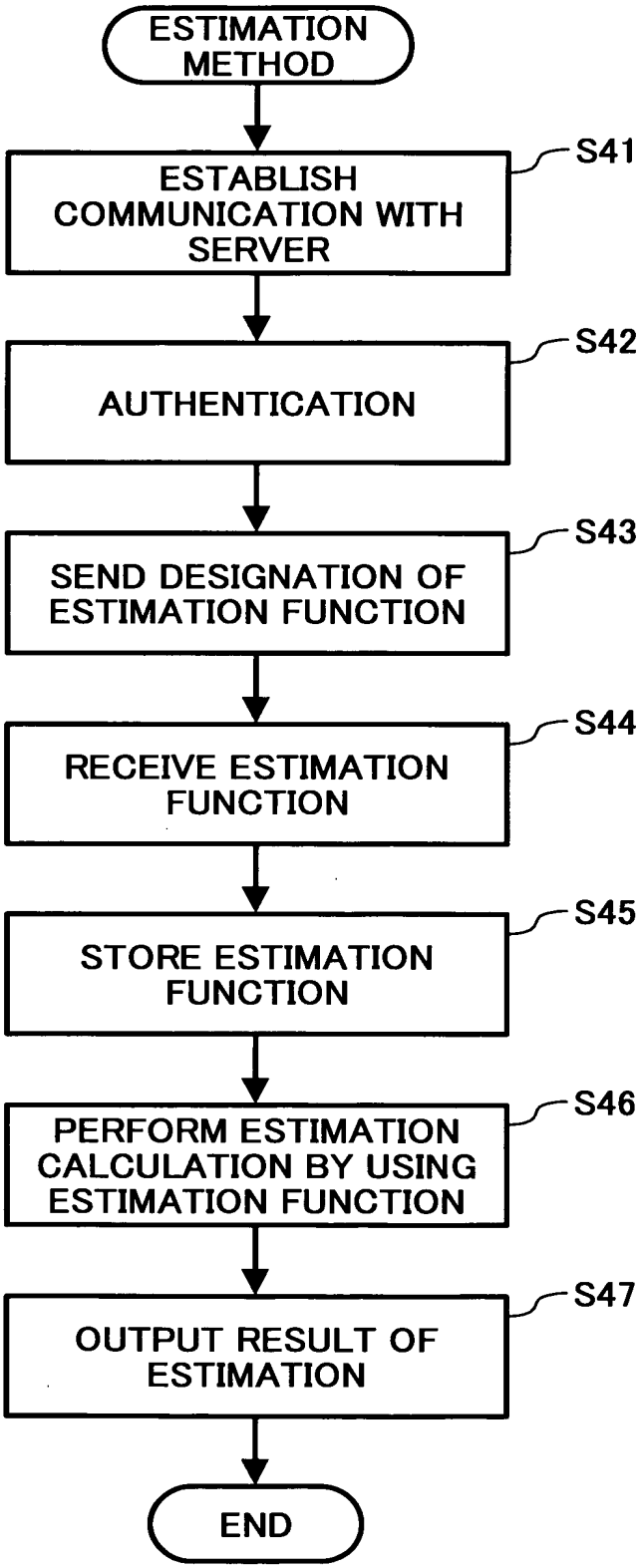

ESTIMATION METHOD
S41
ESTABLISH COMMUNICATION WITH SERVER
S42
AUTHENTICATION
S43
SEND DESIGNATION OF ESTIMATION FUNCTION
S44
RECEIVE ESTIMATION FUNCTION
S45
STORE ESTIMATION FUNCTION
S46
PERFORM ESTIMATION CALCULATION BY USING ESTIMATION FUNCTION
S47
OUTPUT RESULT OF ESTIMATION
END

FIG. 37

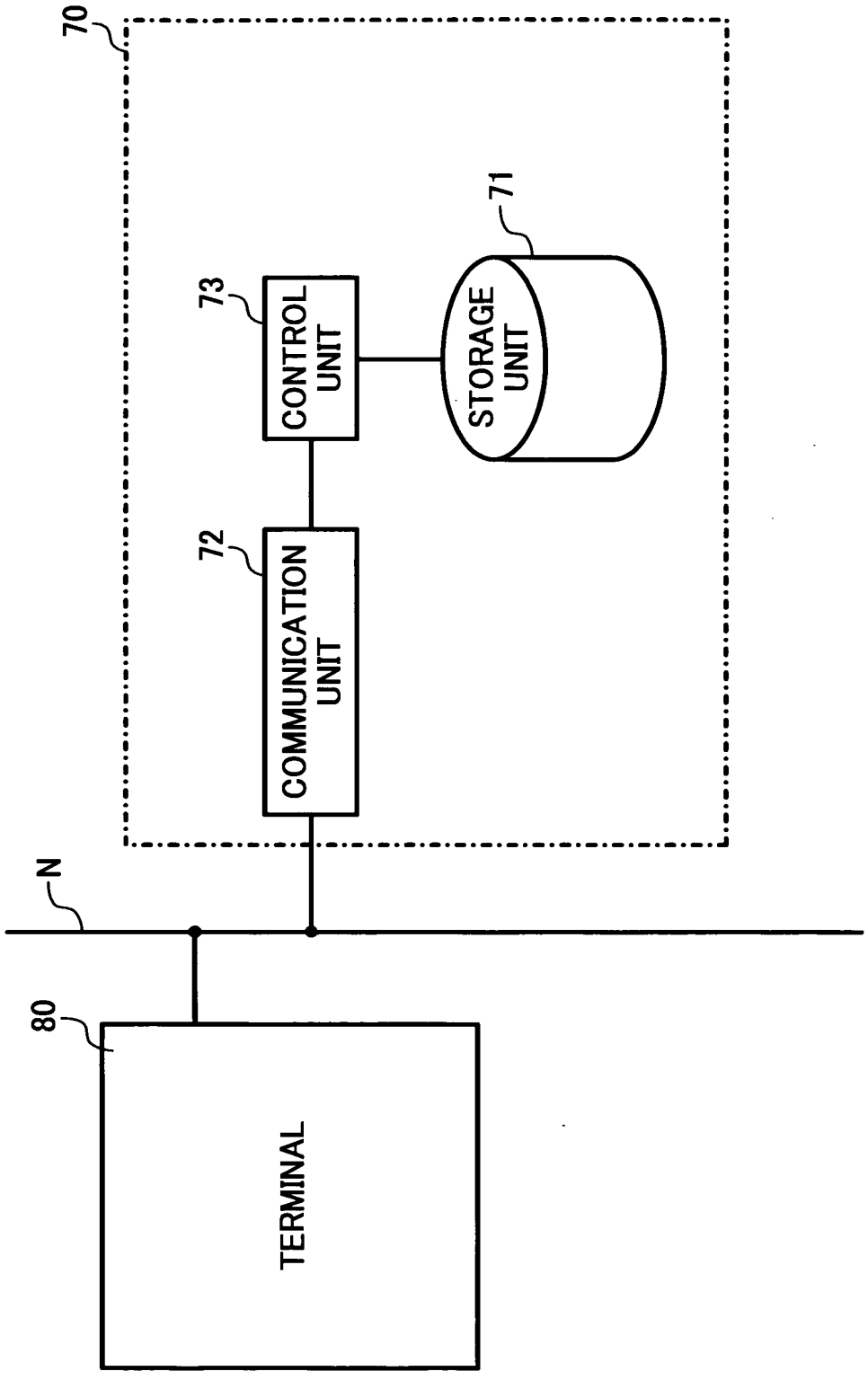
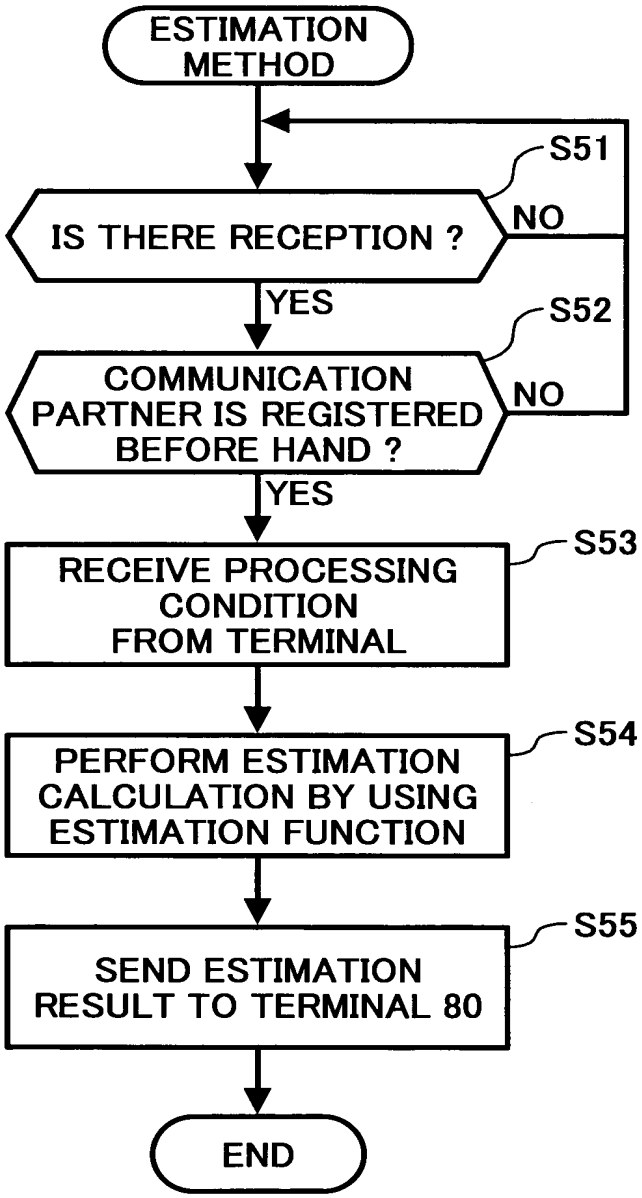

70
71
73
CONTROL UNIT
STORAGE UNIT
72
COMMUNICATION UNIT
N
80
TERMINAL

FIG. 38


ESTIMATION METHOD
S51
IS THERE RECEPTION ?
NO
YES
S52
COMMUNICATION PARTNER IS REGISTERED BEFORE HAND ?
NO
YES
S53
RECEIVE PROCESSING CONDITION FROM TERMINAL
S54
PERFORM ESTIMATION CALCULATION BY USING ESTIMATION FUNCTION
S55
SEND ESTIMATION RESULT TO TERMINAL 80
END